REMARKS

Reconsideration of this application, as amended, is respectfully requested. Applicant has amended claims 1 and 9. No other amendments have been made. Claims 1-16 remain pending in the application.

The Examiner had rejected claims 1, 2, 5, 7, 9, 10, 13 and 14 under 35 USC 102(e) as being anticipated by the Colomes reference. Claims 3 and 11 were rejected under 35 USC 103(a) as being obvious in view of Colomes and U.S. Patent No. 5,809,453 to Hunt. Claims 4, 6, 12 and 15 were rejected under 35 USC 103(a) as being obvious in view of Colomes and U.S. Patent No. 5,621,854 to Hollier. Claims 8 and 16 were rejected under 35 USC 103(a) as being obvious in view of Colomes and ITU-R BS 1387.

Applicant would like to thank the Examiner for the interview on Feb. 8, 2006, and the follow-up discussion of Feb. 15, 2006. Applicant directs the following arguments to claims 1 and 9 specifically, although they apply to all claims that depend therefrom.

As noted in the interview, Colomes is not directed at providing an objective perceptual quality rating of a signal, and instead is directed at providing a probability value indicative of the number of people out of a sufficiently large sample that would be able to discern a difference in the signals. This differs from an objective perceptual quality rating as explained below.

Perception of a distortion is based on a number of psychoacoustic properties, but for the following example, only the duration of a distortion and the intensity of the distortion are discussed for the sake of simplicity. A mild distortion may not be immediately noticed, but will be noticed if it persists for long enough. In a 5 second sample, a mild distortion could be applied across the entire 5-second sample, and would result in a near 100% detection level according to the Colomes system. Alternatively, a very brief, but very noticeable distortion could be applied to a small segment of the 5-second sample. This would also result in a 100% detection level. Thus, Colomes will not differentiate between the two. The system, as claimed in claim 9, and the method of claim 1 do not provide a probability reflecting the number of listeners that would detect the difference, but instead provide a quality rating for the sample. A mild distortion across the entire signal (especially if it is uniform) may be much more acceptable to listeners, and thus would be able to obtain a better score than a brief but intense distortion. Herein, lies the difference between a quality rating and a probability of detection.

Applicant has amended claims 1 and 9 so that the nature of the objective perceptual quality rating is reflected with greater clarity. The objective perceptual quality rating is now clarified as quantifying the perceptual difference *in acoustic quality* between the reference audio signal and the target audio signal. Prior to the subject matter of the instant application, audio quality ratings were achieved using pools of listeners that would be instructed on a system of

scoring, and then were provided the two samples and asked to provide a score. With a sufficiently large pool of listeners, the results tend to converge to fixed values. Prior art attempts at providing objectivity were directed along the same lines as Colomes, and provided probability of detection values. By removing the requirement of using a large pool of listeners, the system of claim 9 allows for a more rapid determination of the quality of a codec. Because it is automated, it is reproducible and objective. The quality rating quantifies the perceived quality difference between target and reference signals. This is markedly different to the probability of detection outlined in the cited references, and it is submitted that, as amended, the independent claims are clearly neither obvious nor anticipated by the Colomes reference.

During the interview, Applicant's representative provided a more detailed description of the differences between the perceptual quality rating and the probability of detection, and directed special attention to the explanation that the spreading function of Colomes is not a perceptual rating, and instead is a factor that is used to calculate the excitation level which is analogous to the basilar sensation signal of claim 9. The basilar sensation signal is used to determine the perceptual rating, whereas the spreading function of Colomes is used to determine the sensation signal. Thus, the perceptual quality rating and the spreading function cannot be treated as analogous elements.

Furthermore, Applicant's representative addressed the Examiner's verbal comment that it may be possible to use the artificial ear of Colomes with different masking-level values to determine different thresholds and develop a system that would effectively provide quality ratings. It was noted that this was *not* taught towards in Colomes. The only reference that Colomes made to using different thresholds was in a testing and calibration phase, where different values were applied to determine which one value would be used. Although the artificial ear of the Colomes reference could be used in place of the peripheral ear processor of claim 9, it would still lack the cognitive processor which determines the objective perceptual quality rating. To introduce such a feature into Colomes would require either inventive ingenuity, or access to the invention so that hindsight can be applied.

With reference to the ITU-R BS.1387 reference and it's discussion of the Perceptive Objective Measurement (POM) techniques of Colomes in Section 4.6 on page 24, Applicant directs the Examiner's attention to the final paragraph of the reference, which clearly notes that the POM outputs "the probability of detecting a distortion between the two compared signals...".

Applicant further notes that reference's discussion of subjective quality measurements does not teach the claimed matter, as they would not be reproducible.

Applicant submits that in view of the above comments, independent claims 1 and 9, as amended, are not anticipated by Colomes as Colomes does not teach quantifying the perceptual difference in acoustic quality between the reference audio signal and the target audio signal.

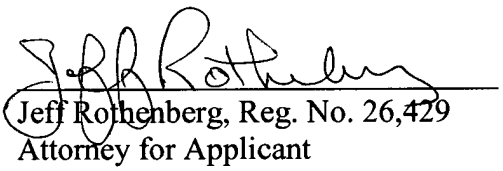
Accordingly, Applicant requests that the rejection of claims 1 and 9 under 35 USC 102(e) be withdrawn.

Applicant notes that none of the Hunt, Hollier, and ITU-R BS 1387 references can be combined with Colomes to reach the matter of claims 1 and 9. Applicant further notes that claims 2-8 depend, either directly or indirectly from claim 1 while claims 10-16 depend either directly or indirectly from claim 9. Thus, as claims 2-8 and 10-16 include all the limitations of the independent claims from which they depend, Applicant submits that these claims overcome the rejections based on 35 USC 102(e) and 35 USC 103(a), and requests that these rejections be withdrawn.

Applicant submits that the application is now in condition for allowance and earnestly solicits action to that end.

Applicant would like to thank the Examiner for his time and efforts on this application and in the interviews.

Respectfully submitted,



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